

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Air Permit Review

Permit Issue Date:

Region: Fayetteville Regional Office
County: Richmond
NC Facility ID: 7700082
Inspector's Name: Heather Carter
Date of Last Inspection: 01/15/2015
Compliance Code: 3 / Compliance - inspection

Facility Data				Permit Applicability (this application only)			
Applicant (Facility's Name): NCEMC - Hamlet Plant Facility Address: NCEMC - Hamlet Plant 162 Cooperative Way Hamlet, NC 28345 SIC: 4911 / Electric Services NAICS: 221112 / Fossil Fuel Electric Power Generation Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V				SIP: 2D: .0521, .0524, .0530, .1100 2Q: .0317, .0400 NSPS: Subpart KKKK NESHAP: N/A PSD: NOx, CO, PM10, PM2.5 PSD Avoidance: NOx, GHGs NC Toxics: 2D .1100 112(r): N/A Removed: 2D .2402, .2403, .2404 Other: CSAPR (40 CFR Part 97, Subparts AAAAA, BBBBB, and CCCCC)			
Contact Data				Application Data			
Facility Contact		Authorized Contact		Technical Contact		Application Numbers: 7700082.15A & .15B Date Received: 04/15/2015 (.15A) 11/04/2015 (.15B) Application Type: Renewal Application Schedule: TV-Renewal Existing Permit Data Existing Permit Number: 09488/T08 Existing Permit Issue Date: 09/23/2013 Existing Permit Expiration Date: 01/31/2016	
Shawn Fowler Manager, Combustion Turbine Generation (704) 848-4002 162 Cooperative Way Hamlet, NC 28345		S. Ragsdale VP of Asset Management (919) 875-3056 3400 Summer Boulevard Raleigh, NC 27616		Khalil Porter Environmental Scientist (919) 875-3088 3400 Sumner Boulevard Raleigh, NC 27616			
Total Actual emissions in TONS/YEAR:							
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2014	---	29.02	2.89	26.77	1.92	0.2921	0.1583 [Formaldehyde]
2013	0.1000	23.87	2.86	16.94	6.71	0.1884	0.1177 [Formaldehyde]
2012	0.7600	105.62	21.68	63.92	31.09	1.32	0.8906 [Formaldehyde]
2011	0.4300	61.20	12.58	38.21	17.53	0.7404	0.5126 [Formaldehyde]
2010	0.6500	81.23	18.18	50.28	25.30	1.07	0.7438 [Formaldehyde]
Review Engineer: Russell Braswell Review Engineer's Signature: _____ Date: _____				Comments / Recommendations: Issue 09488/T09 Permit Issue Date: _____ Permit Expiration Date: _____			

1. Purpose of Application:

- .15A

NCEMC – Hamlet Plant (NCEMC) currently operates under Title V Air Quality Permit 09488T08, which expires on January 31, 2016. NCEMC submitted this application in order to renew the permit. Because this application was received at least nine months before the expiration date, the current permit will remain in effect, regardless of expiration date, until this application is approved or denied.

- .15B

NCEMC also operates under a Title IV Acid Rain permit. The permit term for a Title V and Title IV permit is the same: five years. NCEMC submitted this application in order to renew the Title IV permit early and thus synchronize the expiration dates of the Title V and IV permits.

2. Facility Description:

This facility operates twelve simple-cycle combustion turbines which power 6 electric generators. Based on the most recent inspection report¹, the facility generally operates as a peak-shaving power plant.

3. History/Background Since the Previous Permit Renewal:

- February 9, 2011 Permit T05 issued. This was for a 1st time Title V permit and renewal of the existing permit.
- August 27, 2012 Permit T06 issued in response to applications .12A and .12B. This action modified the Title IV permit and added CAIR requirements to the permit.
- October 10, 2012 Permit T07 issued in response to application .10A. This action was a major modification that added Unit 6 to the permit, removed the oxidation catalyst control devices from Units 1 – 5, and required ultra-low sulfur fuel for all turbines at the facility. Both the addition of Unit 6 and the removal of the oxidation catalyst triggered a PSD review.

4. Application Chronology:

- April 13, 2015 Application .15A received.
- October 29, 2015 Email sent to Khalil Porter requesting that NCEMC submit an additional application in order to renew the Title IV permit.
- November 4, 2015 Application .15B received.
- November 13, 2015 An initial draft of the permit and review were sent to DAQ staff (Mark Cuilla, Tom Anderson, Samir Parekh, Heather Carter) and to NCEMC staff (Khalil Porter). For a summary of comments received, see Attachment 2.
- December 11, 2015 The Public / EPA Notice periods began.

¹ Heather Carter on January 15, 2015

- XXXX The last notice period ended
- XXXX Permit issued.

5. Permit Modifications/Changes and TVEE Discussion:

The list of changes to the permit can be found in Attachment 1.

6. Regulatory Review:

NCEMC is subject to the following regulations, in addition to the requirements in the General Conditions:

- a. 15A NCAC 2D .0521 "Control of Visible Emissions"
- b. 15A NCAC 2D .0524 "New Source Performance Standards" (40 CFR Part 60, Subpart KKKK)
- c. 15A NCAC 2D .0530 "Prevention of Significant Deterioration"
- d. 15A NCAC 2D .1100 "Control of Toxic Air Pollutants"
- e. 15A NCAC 2Q .0317 "Avoidance Conditions" (PSD Avoidance)
- f. 15A NCAC 2Q .0400 "Acid Rain Procedures"
- g. 40 CFR Part 97, Subparts AAAAA, BBBB, and CCCCC (Cross State Air Pollution Rules)

An extensive review for each applicable regulation is not included in this document, as the facility's status with respect to these regulations has not changed. The permit will be updated to reflect the most current stipulations for all applicable regulations. The transition from the Clean Air Interstate Rules (CAIR) to the Cross State Air Pollution Rules (CSAPR) is discussed below:

a. CAIR requirements

According to 40 CFR 52.35(f) and 52.36(e), CAIR no longer applies as of January 1, 2015 "notwithstanding any State's SIP to the contrary". CAIR has been moved to Section 2.5. in the permit, which contains a permit shield for non-applicable regulations.

According to 15A NCAC 2D .2401(a), the purpose of the 2D .2400 rules was to implement CAIR. Given that CAIR no longer applies, the NC rules that implement CAIR also do not apply. Therefore, references to 2D .2400 rules have been moved to Section 2.5. in the permit.

b. CSAPR requirements

CSAPR (specifically, 40 CFR Part 97, Subparts AAAAA, BBBB, and CCCCC) was originally scheduled to take effect on January 1, 2012. This rule was planned as a replacement for CAIR. However, CSAPR was challenged in court and initially vacated by the DC Circuit Court. Legal issues were finally resolved in April 2014, when the US Supreme Court reversed that decision. Because the regulation was delayed by court proceedings, the effective date of the rule was moved to January 1, 2015.

Under this rule, each of the turbines at the facility is considered a "large electric generating unit", per 40 CFR 52.34. This rule and all requirements thereof are considered Federal-enforceable only. Compliance will be determined by the US EPA, not NC DAQ. A reference to this rule has been added to the permit.

7. NSPS, MACT/GACT, PSD/NSR, 112(r), RACT, CAM:

a. NSPS

1. Subpart KKKK "Stationary Combustion Turbines"

This regulation limits SO₂ and NO_x emissions from stationary turbines, and applies to all turbines at this facility. The limits depend on the fuel being burned and the age of the turbine. The regulation has two overall sets of requirements: one for NO_x and one for SO₂.

- NO_x

The regulation requires continuous monitoring for NO_x emissions, either by a CEMS or by a parametric monitoring system for the water injection control device. As an alternative, Appendix E to 40 CFR Part 75 (hereafter referred to as just "Appendix E") allows for monitoring parameters of the turbine and calculating emissions based on comparisons to recent performance tests. Appendix E is only available of "peaking units" as defined in 40 CFR 72.2. NCEMC has chosen to comply with the Appendix E alternative.

For Appendix E, NCEMC must retest the turbines every five years. The testing will be used to establish representative emission factors for the turbines. While operating the turbines, NCEMC must monitor the parameters listed in Section 2.3.1. of Appendix E, and then calculate emissions using the procedures in Sections 2.4 and 2.5.

Because Appendix E can only be applied to peaking units, NCEMC will be required to keep records that show it can meet the definition: "A unit that has an average capacity factor of no more than 10.0 percent during the previous three calendar years and a capacity factor of no more than 20.0 percent in each of those calendar years."

- SO₂

The regulation requires continuous monitoring for SO₂ emissions. As an alternative, NCEMC has chosen to purchase only compliant fuel, as shown by purchase contracts. Purchase contracts can also be used in place of emission testing.

For both pollutants, NCEMC must keep records of all monitoring activities and report them regularly.

b. MACT/GACT

The only potentially applicable MACT is Subpart YYYY. This rule only applies to sources that are HAP-Major. This facility is not HAP-Major, so this rule does not apply.

c. PSD/NSR

Each turbine at the facility has triggered a PSD review. Units 1 – 5 have a BACT limit for CO, and Unit 6 has a BACT limit for PM_{10/2.5}, NO_x, and CO. During the initial PSD review for these BACT limits, it was determined that only an initial performance test was required to demonstrate compliance with the BACT limits.

In addition, NCEMC is avoiding additional PSD requirements by limiting GHG emissions from Unit 6 and limiting NOx emissions from the combination of Units 1 – 5.

d. 112(r)

The facility does not appear to store any 112(r)-subject materials above their respective thresholds. Therefore, the facility does not have any increased requirements under Section 112(r) of the Clean Air Act.

e. RACT

The facility is not located in an area of ozone nonattainment. Therefore, RACT does not apply.

f. CAM

CAM applies to a control device if the following criteria are met:

1. The unit being controlled is subject to a non-exempt emission standard (as defined by 2D .0614(b)(1)),
2. The control device is being used to comply with the emission standard, and
3. The unit being controlled has potential emissions of the pollutant subject to the emission standard of greater than major source thresholds.

The only control device used at the facility is water injection, which is only used to control NOx emissions. Each turbine at the facility has potential NOx emissions greater than the major-source threshold.

The tables below examine each NOx emission limit in the permit for CAM applicability:

Units 1 – 5

Limit	Exempt?	Notes
NSPS Subpart KKKK	Yes	2D .0614(b)(1)(a); Post-1990 standard
PSD Avoidance	Yes	2D .0614(b)(1)(E); Emission cap under 15A NCAC 2D or 2Q

Unit 6

Limit	Exempt?	Notes
NSPS Subpart KKKK	Yes	2D .0614(b)(1)(a); Post-1990 standard
BACT emission standard	Yes	2D .0614(b)(1)(F); NSPS KKKK is a continuous compliance determination method*.
BACT annual emission limit	Yes	2D .0614(b)(1)(E); Emission cap under 15A NCAC 2D or 2Q

- * The facility uses the procedures of 40 CFR Part 75, Appendix E in order to demonstrate compliance with the emission limits of NSPS KKKK and the BACT emission standard. This procedure provides hourly NOx emission rates. Given that the BACT limit is based on a 30-day rolling average, Appendix E clearly meets the definition of "continuous compliance determination method" under 40 CFR 64.1.

Therefore, CAM does not apply to this facility.

8. Acid Rain Permit Requirements

40 CFR Parts 72 and 76 contain the Federal regulations that pertain to the Title IV Acid Rain permit requirements. This program is administered entirely by the USEPA, and NCDAQ does not regulate it. The requirements of these rules are incorporated into NCDAQ's rules by reference in 15A NCAC 2Q .0400, but the ultimate enforcement of the rules is left to USEPA.

9. Toxic Air Pollutants

NCEMC performed a modeling demonstration on August 24, 2011. This demonstration showed that the facility would not violate any AALs, and that no operating restrictions, monitoring, or recordkeeping was required in order to comply with the AALs.

This permit application will not have any effect on TAP emission rates.

10. Facility Emissions Review

This permit application will not have any effect on potential emissions from the facility.

For a review of actual emissions from the facility from recent years, see the table on the first page of this review.

11. Compliance Status

- a. Notices of Violation/Recommendation for Enforcement since the previous renewal

None.

- b. Inspection status

The facility was most recently inspected by Heather Carter on January 15, 2015. The facility appeared to be in compliance with the permit at that time.

12. Other Regulatory Concerns

A PE seal was not required for this permit renewal.

A zoning consistency form was not required for this permit renewal.

13. Public Notice/EPA and Affected State(s) Review

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 2Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA.

Also pursuant to 2Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above.

14. Recommendations

Review of applications 7700082.15A & .15B

NCEMC - Hamlet Plant

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Issue permit 09488T09.

DRAFT

Change List

Page*	Section*	Description of Changes
Throughout	Throughout	<ul style="list-style-type: none"> Updated dates. Updated permit/application numbers. Removed references to CAIR. Added references to CSAPR. Reordered and regrouped regulations to better match the sources they cover. Added footnotes documenting the date of initial testing for NSPS and BACT for each unit.
3	Permitted Emission Source List	<ul style="list-style-type: none"> Split CD-1 into CD1-A, etc. This is because each turbine has an individual water injection system. Combined entries for ES1-A, etc. This is because these 10 turbines are identical. Combined entries for ES6-A, etc. This is because these two turbines are identical.
	2.1.A.	<ul style="list-style-type: none"> Moved conditions for the following regulations into this section: <ul style="list-style-type: none"> 2D .0530 (as it pertains to Units 1 – 5) 2Q .0317 (as it pertains to Units 1 – 5) <p>This is only to better organize the permit, and does not result in a change in requirements.</p>
	2.1.B.	<ul style="list-style-type: none"> Moved conditions for the following regulations into this section: <ul style="list-style-type: none"> 2D .0530 (as it pertains to Unit 6) 2Q .0317 (as it pertains to Unit 6) <p>This is only to better organize the permit, and does not result in a change in requirements.</p> <ul style="list-style-type: none"> Combined all BACT limits into one permit condition. This is only to reduce repetition in the permit, and does not result in a change in requirements.
	2.2.A.	<ul style="list-style-type: none"> Moved conditions for the following regulations into this section: <ul style="list-style-type: none"> 2D .0521 NSPS Subpart KKKK 2D .1100 <p>This is only to better organize the permit, and does not result in a change in requirements.</p>
	2.2.A.4.	<ul style="list-style-type: none"> Added paragraph stating that no monitoring/recordkeeping/reporting is required for 2D .1100. There was no MRR requirement previously, this change is only for clarity.
	2.4.	<ul style="list-style-type: none"> Added section for CSAPR requirements.
	2.5.	<ul style="list-style-type: none"> Added a permit shield for non-applicable requirements.
	3.	<ul style="list-style-type: none"> Updated general conditions to v3.7.

* This refers to the current permit unless otherwise stated.

Comments Received on Initial Draft

- Mark Cuilla, by email on November 23, 2014

1. Mark pointed out several typos in the review and permit.

Response: These typos have been corrected.

2. Mark requested that the permit review address the Acid Rain Permit Requirements

Response: Done.

3. Mark questioned whether NSPS Subpart KKKK really does constitute a CCDDM for purposes of CAM exemption.

Response: I have added more discussion of this point to the CAM section.

- Khalil Porter, by email on December 7, 2015

1. Khalil requested that the emission source ID numbers be changed from "ES-1A" to "ES1-A", etc.

Response: Done

2. For the monitoring/recordkeeping/reporting section of NSPS KKKK, Khalil prefers the wording in the NCEMC – Anson permit. Could that be used in this permit as well?

Response: Done

3. Khalil also suggested using the Anon permit review's discussion of NSPS KKKK, instead of what was originally in the draft.

Response: Done